



**UNIVERSITY EXAMINATIONS: 2013/2014**  
**EXAMINATION FOR THE MASTER OF SCIENCE IN**  
**DATA COMMUNICATIONS**

**MDC 6201 FUNDAMENTALS OF INFORMATION SYSTEMS SECURITY**

**DATE: AUGUST, 2014**

**TIME: 2 HOURS**

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**INSTRUCTIONS: Answer Question One and Any Other Two Questions**

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**QUESTION ONE: [20 Marks]**

- a) State the three most important goals of information system security and briefly describe each one of the three primary goals. (6 Marks)
- b) Briefly describe the characteristics of IEEE 802.11b, 802.11a, and 802.11g wireless networks. (2 Marks)
- c) What is a dictionary attack? (2 Marks)
- d) What is a wireless security policy and why is it important? (5 Marks)
- e) Differentiate between the roles of a certificate revocation list and a certificate repository in ensuring the security of online transactions. (4 Marks)
- f) State the range of port numbers that are reserved for universal applications like the SMTP? (1 Mark)

**QUESTION TWO (15 MARKS)**

- (a) Consider an automated teller machine (ATM) in which users provide a personal identification number (PIN) and a card for account access. Give examples of confidentiality, integrity, and availability requirements associated with the system. In each case, indicate the degree of importance of the requirement. (6 Marks)

- b) Using examples discuss the four major categories of information systems security threats and give their counter measures. (9 Marks)

### **QUESTION THREE (15 MARKS)**

- a) Explain how Wireless Equivalent Protocol (WEP) violates the “cardinal rule” of cryptography. (5 Marks)
- b) Explain what Wireless Application Protocol (WAP) is and how it works. (5 Marks)
- c) What is the difference between a thin access point and a fat access point? (5 Marks)

### **QUESTION FOUR (15 MARKS)**

- a) Risk Analysis is the process of identifying, assessing, and reducing the probability that a particular threat will exploit a particular vulnerability to an acceptable level within an organization’s IT security. Briefly describe the steps taken to carry out qualitative risk analysis. (10 Marks)
- b) State the guidelines one should follow to design a security policy. (5 Marks)